

Attorney Docket: 112.P14015

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CENTRAL FAX CENTER****OCT 16 2006****IN THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application. Where claims have been amended and/or canceled, such amendments and/or cancellations are done without prejudice and/or waiver and/or disclaimer, and Assignee reserves the right to claim this subject matter in a continuing application:

1. (Previously Presented) A scanning device, comprising:

an application specific integrated circuit, wherein the application specific integrated circuit is adapted to:

receive an even data value obtained from an even-numbered pixel of the scanning device and an odd data value obtained from an odd-numbered pixel of the scanning device;

perform a computation using the even data value, the odd data value and a preset value to produce an even compensation value and an odd compensation value;

average the even compensation value and the odd compensation value to produce an averaged odd-even compensation value; and

compensate an even-numbered pixel value and an odd-numbered pixel value obtained from the scanning device by using the odd-even compensation value.

2. (Previously Presented) The scanning device of claim 1, wherein the scanning device further includes:

an image memory unit coupled to the application specific integrated circuit for holding a plurality of image data values; and

an input/output interface coupled to the application specific integrated circuit for accessing the image data values.

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3. (Previously Presented) The scanning device of claim 1, wherein the scanning device further includes:

an alternative-sensing device, wherein the alternative-sensing device performs a plurality of alternate scanning operations on a document and sequentially obtains a plurality of alternately scanned pixels; and

an analogue/digital converter coupled to the alternative-sensing device for digitizing the alternately scanned pixel data in analogue format into even data values and odd data values, and transferring the even data values and the odd data values to the application specific integrated circuit.

4. (Previously Presented) The scanning device of claim 1, further comprising:

a linear sensing device, wherein the linear sensing device is adapted to perform a plurality of linear scanning operations on a document and sequentially obtain a plurality of linearly scanning pixels; and

an analogue/digital converter coupled to the linear sensing device for digitizing the linearly scanned pixel data in analogue format into even data values and odd data values, and transferring the even data values and the odd data values to the application specific integrated circuit.

5. (Currently Amended) A method of performing a scanning operation, comprising:

receiving an even compensation value for compensating an even-numbered pixel and an odd compensation value for compensating an odd-numbered pixel; [[and]]

averaging the even compensation value and the odd compensation value to produce an averaged odd-even compensation value; and

using the odd-even compensation value to compensate an even-numbered pixel value and an odd-numbered pixel value.

6. (Cancelled)

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7. (Currently Amended) The method of claim 5, wherein the even-numbered pixel value and the odd-numbered pixel value are obtained substantially by a process comprising:

performing a plurality of alternate scanning operations on a document to obtain values corresponding to a plurality of alternately scanned pixels; [[and]]

digitizing the alternately scanned pixel values into even data values and odd data values; and providing the even data values and the odd data values to the an application specific integrated circuit.

8. (Previously Presented) The method of claim 5, wherein compensating the even-numbered pixel value and the odd-numbered pixel value comprises adding a corresponding odd-even compensation value to the even-numbered pixel value and the odd-numbered pixel value.

9. (Previously Presented) A method, comprising:

receiving a shading value obtained from a compensation procedure for an even-numbered pixel and an odd-numbered pixel of a scanning device;

producing an odd-even shading compensation value by use of the even-numbered pixel shading value and the odd-numbered pixel shading value; and

using the odd-even shading compensation value to perform shading compensation for an even-numbered pixel value and an odd-numbered pixel value obtained from a scanning operation.

10. (Previously Presented) The method of claim 9, wherein the even-numbered pixel value and the odd-numbered pixel value are obtained substantially by a process comprising:

performing a plurality of alternate scanning operations on a document to obtain shading values corresponding to a plurality of alternately scanned pixels;

digitizing the alternately scanned pixel shading values into even data values and odd data values; and

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providing the even data values and the odd data values to an application specific integrated circuit.

11. (Previously Presented) The method of claim 9, wherein compensating the even-numbered pixel value and the odd-numbered pixel value comprises adding a corresponding odd-even shading compensation value to the even-numbered pixel value and the odd-numbered pixel value.

12. (Previously Presented) An apparatus, comprising:

circuitry adapted to receive a shading value obtained from a compensation procedure for an even-numbered pixel and an odd-numbered pixel of a scanning device;

circuitry adapted to produce an odd-even shading compensation value by use of the even-numbered pixel shading value and the odd-numbered pixel shading value; and

circuitry adapted to perform shading compensation for an even-numbered pixel value and an odd-numbered pixel value obtained from a scanning operation.

13. (Previously Presented) The apparatus of claim 12, further comprising:

an image memory unit adapted to hold a plurality of image data values; and

an input/output interface adapted to access the image data values.

14. (Previously Presented) The apparatus of claim 12, further comprising:

an alternative-sensing device adapted to perform a plurality of alternate scanning operations on a document and sequentially obtain a plurality of values from alternately scanned pixels; and

an analogue/digital converter coupled to the alternative-sensing device adapted to digitize the alternately scanned pixel values in analogue format into even data values and odd data values and transfer the even data values and the odd data values to said circuitry to receive a value.

15. (Currently Amended) The apparatus of claim 12, and further comprising:

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circuitry adapted to perform a plurality of alternate scanning operations on a document to obtain values corresponding to a plurality of alternately scanned pixels; [[and]]

circuitry adapted to digitize the alternately scanned pixel values into even data values and odd data values; and

circuitry adapted to provide the even data values and the odd data values to an application specific integrated circuit.

16. (Previously Presented) The apparatus of claim 12, wherein performing shading compensation comprises adding a corresponding odd-even shading compensation value to an even-numbered pixel value and an odd-numbered pixel value obtained from a scanning operation.

17. (Previously Presented) An apparatus, comprising:

means for receiving a shading value for an even-numbered pixel and an odd-numbered pixel of a scanning device;

means for producing an odd-even shading compensation value based at least in part on the even-numbered pixel shading value and the odd-numbered pixel shading value; and

means for performing shading compensation for an even-numbered pixel value and an odd-numbered pixel value obtained from a scanning operation by use of the odd-even compensation value.

18. (Previously Presented) The apparatus of claim 17, further comprising:

means for obtaining shading values corresponding to a plurality of alternately scanned pixels; and

means for digitizing the alternately scanned pixel shading values into even data values and odd data values.

19. (New) An apparatus, comprising:

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a sensor having a plurality of pixels to perform a plurality of alternate scanning operations on a scanning object to obtain a plurality of alternately scanned pixel values;

an analogue/digital converter to digitize the alternately scanned pixel values into even data values and odd data values; and

an application specific integrated circuit to receive at least a portion of the even data values and odd data values from the analogue/digital converter, the application specific integrated circuit further adapted to:

perform a computation using the even data values, the odd data values and a preset value to produce corresponding even compensation values and odd compensation values;

average the even compensation values and the odd compensation values to produce corresponding averaged odd-even compensation values; and

compensate even-numbered pixel values and odd-numbered pixel values of the sensor by using the corresponding averaged odd-even compensation values.

20. (New) The apparatus of claim 19, further comprising:

an image memory unit coupled to the application specific integrated circuit to hold a plurality of the alternately scanned pixel values; and

an input/output interface coupled to the application specific integrated circuit to access the plurality of alternately scanned pixel values.

21. (New) The apparatus of claim 19, further comprising:

a compensation memory unit to hold a plurality of the odd-even compensation values; and

an input/output interface coupled to the application specific integrated circuit to access the plurality of the odd-even compensation values.

22. (New) The apparatus of claim 19, wherein the compensation memory unit comprises Random Access Memory (RAM).

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23. (New) The apparatus of claim 19, wherein the sensor comprises a charge-coupled device (CCD).

24. (New) A scanner, comprising:

an alternative-sensing device to perform a plurality of alternate scanning operations on a scanning object and sequentially obtain a plurality of alternately scanned pixel values; and

an analogue/digital converter to digitize the alternately scanned pixel values in analogue format into even data values and odd data values; and

an application specific integrated circuit, adapted to:

receive the even data values and odd data values from the analogue/digital converter;

perform a computation using the even data values, the odd data values and a preset value to produce corresponding even compensation values and odd compensation values; and

average the even compensation values and the odd compensation values to produce corresponding averaged odd-even compensation values;

an image memory unit coupled to the application specific integrated circuit to hold a plurality of the alternately scanned pixel values; and

a compensation memory unit coupled to the application specific integrated circuit to hold a plurality of the corresponding averaged odd-even compensation values.

25. (New) The apparatus of claim 24, further comprising an input/output interface coupled to the application specific integrated circuit for accessing the alternately scanned pixel values from the image memory unit.

26. (New) The apparatus of claim 24, further comprising an input/output interface coupled to the application specific integrated circuit for accessing the plurality of the corresponding averaged odd-even compensation values.

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27. (New) The apparatus of claim 24, wherein the compensation memory unit comprises Random Access Memory (RAM).

28. (New) The apparatus of claim 24, wherein the alternative-sensing device comprises a charge-coupled device (CCD).